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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/799,514	03/12/2004	Francois Spertini	30985/41486	8487

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EXAMINER	
ROONEY, NORA MAUREEN	

ART UNIT	PAPER NUMBER
1644	

MAIL DATE	DELIVERY MODE
09/01/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/799,514	SPERTINI ET AL.	
	Examiner	Art Unit	
	NORA M. ROONEY	1644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 June 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *55-63 and 65* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *55-63 and 65* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 06/17/2009 has been entered.

2. Claims 55-63 and 65 are pending and currently under examination as they read on a method for generating a composition of contiguous overlapping peptide fragments.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 55-61 and 63 are rejected under 35 U.S.C. 102(b) as being anticipated by WO 01/88085 (PTO-892 mailed on 06/12/2008; Reference N) for the same reasons as set forth in the Office Action mailed on 12/17/2008.

Applicant's argument filed on 06/17/2009 has been fully considered, but is not found persuasive.

Applicant argues:

"The anticipation rejection of claims 55-61 over WO 01/88085 should be withdrawn because the reference discloses some of the individual elements of independent claim 55 but fails to disclose their combination in the order and manner of the invention to yield an improved method for generating contiguous overlapping peptides (COPs).

The concept of COPs is in the prior art and it is the case that COPs useful for immunotherapy to reduce the risk of anaphylaxis from a particular allergen will share certain characteristics. Specifically, useful COPs have been identified empirically in the past and are characterized by possessing the properties of having T cell stimulating activity for T cells specific for the selected allergen but having weak binding activity for IgE's reactive with the selected allergen.

While WO 01/88085 discloses overlapping polypeptide fragments and the fact that useful COPs are characterized by strong T cell stimulating activity and weak IgE reactivity, it does not disclose a systematic method by which useful COPs can be identified. What the Applicant has contributed is a systematic method by which useful COPs can be identified and generated for a polypeptide allergen. Thus, the first steps of Applicant's invention are (1)(a) conducting a structural analysis to identify three dimensional structural formations of the allergen followed by (1)(b) selecting one or more separation sites within the sequence of the polypeptide allergen to provide COPS presenting T-cell structural motifs but not tertiary structural motifs such that the overlapping peptide fragments do not bind or weakly bind IgE.

The Action cites to portions of WO 01/88085 relating to polypeptide fragments of various lengths (page 2) and that proteins or variant peptides "can tolerize or anergize appropriate T-cell subpopulations" (page 19, lines 14-15). However, the reference does not teach the element of"selecting separation sites" to produce COP's presenting "potential T- cell epitopes but not alpha helix and beta-sheet structural motifs..." as claimed. In fact, WO 01/88085 states only that the administration of its Api m 6 proteins, peptides or variants "may result in lower levels of IgE stimulation." (page 19, lines 25-26, emphasis supplied) This indicates a hit or miss quality to the prior art method which does not disclose the claimed element of affirmatively selecting separation sites whereby lower levels of IgE would be obtained.

The reference also fails to disclose screening candidate COPs according to the invention. Specifically, WO 01/88085 discloses testing a peptide for T-cell stimulating activity but does not discloses testing a composition of COPs (that is multiple peptides) for such activity. Similarly, WO 01/88085 discloses testing of peptides for IgE-mediated immune responses fails to disclose testing of COPs or the screening and selecting of Cops having a greater than minimum T cell stimulating activity and a less than a selected maximum of IgE binding activity.

Thus, while WO 01/88085 discloses or nearly discloses many of the elements of the claims those elements are not the same as or arranged in the same order as those elements are recited in claim 55 and it fails to disclose the method of claim 55 as a whole.

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It is the Examiner's position that the reference does disclose the order and manner of the invention to yield an improved method for generating contiguous overlapping peptides (COPs) because the reference discloses the individual steps and the claimed order of the steps is the only

feasible way that the individual method steps may be combined in order to develop a bee venom strategy based on overlapping peptides as taught by WO 01/88085. The reference does not need to disclose the recited systematic method of identifying COPs as all of the individual method steps are disclosed and they may only be combined in the manner which it is claimed.

It is also the Examiner's position that the reference inherently and explicitly teaches the step of selecting separation sites when it teaches production of Api m 6 peptides. Further, on page 7, line 26 to page 8, line 15 the reference teaches the generation of peptides, derivatives and variants of Api m 6 based on secondary structure. The two types of secondary structures of proteins are alpha helices and beta sheets; therefore generating peptides based on alpha helices and beta sheets is inherent in a method of generating peptides based on secondary structure. The reference teaches on page 18, lines 9-20 and page 19, lines 25-29 that the compositions comprising Api m 6 peptides are meant to decrease the allergic response of a mammal preferably by inducing minimal IgE stimulating activity. The reference discloses screening the peptides for T cell reactivity and IgE stimulatory activity on page 9, lines 21 to page 10, line 8, for example. Applicant is arguing limitations into the claims that are not recited when arguing that COP compositions comprising multiple peptides are not screened as the claims are not directed to COP compositions comprising more than one overlapping peptide.

Therefore, the rejection is maintained.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 55 and 61- 62 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 01/88085 (PTO-892 mailed on 06/12/2008; Reference N) in view of Shanti et al. (PTO-892 mailed 02/12/2007, Page 2, Reference U) for the same reasons as set forth in the Office Action mailed on 12/17/2008.

Applicant's argument filed on 06/17/2009 has been fully considered, but is not found persuasive.

Applicant argues:

> "Shanti fails to make up for the deficiencies of WO 01/88085 with respect to independent claim 55 as described above. More specifically, Shanti fails to teach the overall method of identifying compositions of COPs and while WO 01/88085 and Shanti individually disclose many (but not all) of the elements of claim 55 they do not teach all the steps or the method as a whole. Accordingly, the rejection of claims 55 and 61-62 should be withdrawn."

It is the Examiner's position, and as discussed *supra*, that the claimed invention differs from the prior art of WO 01/88085 only in the recitation of wherein IgE binding activity in vitro is determined by a dot blot immunoblot. Shanti et al. is used for its teaching that dot blotting is an *in vitro* method used to assess IgE binding to allergens and allergen fragments. The combination of WO 01/88085 and Shanti et al. makes the claimed invention obvious to one of

ordinary skill in the art for the same reasons as set forth in the Office Action mailed on 12/17/2008. Therefore, the rejection stands.

7. Claims 55, 63 and 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 01/88085 (PTO-892 mailed on 06/12/2008; Reference N) in view of Spertini et al. (IDS filed on 07/26/2004) for the same reasons as set forth in the Office Action mailed on 12/17/2008.

Applicant's argument filed on 06/17/2009 has been fully considered, but is not found persuasive.

Applicant argues:

> "Spertini C23 neither makes up for the deficiencies of WO 01/88085 with respect to the elements of independent claim 55 nor does it teach the elements of dependent claims 63-65 directed to the specifics of the dermal test.
>
> More specifically, Spertini C23 fails to teach the overall method of identifying compositions of COPs and while WO 01/88085 and Spertini C23 individually disclose many (but not all) of the elements of claim 55 they do not teach all the steps or the method as a whole. Accordingly, the rejection of claims 55 and 61-62 should be withdrawn. "

It is the Examiner's position, and as discussed *supra*, that the claimed invention differs from the prior art of WO 01/88085 only in the recitation of measuring IgE binding activity in vivo using an intradermal test, wherein peptides are selected which have less than a 5 mm wheal diameter. Spertini teaches intradermal injection of peptides at a peptide concentration of .1μg/ ml and that some patients exhibited no reaction. WO 01/88085 teaches selecting the peptides based on intradermal testing and Spertini et al. teaches the specific technique of intradermal skin testing recited in the claims. The intradermal skin test result of no reaction at a peptide concentration of .1 μg/ ml can be used to select candidate peptides in the method taught by WO

01/88085. The combination of WO 01/88085 and Spertini et al. makes the claimed invention obvious to one of ordinary skill in the art for the same reasons as set forth in the Office Action mailed on 12/17/2008. Therefore, the rejection stands.

8. No claim is allowed.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nora M. Rooney whose telephone number is (571) 272-9937. The examiner can normally be reached Monday through Friday from 8:30 am to 5:00 pm. A message may be left on the examiner's voice mail service. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ram Shukla can be reached on (571) 272-0735. The fax number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

August 30, 2009
Nora M. Rooney
Patent Examiner
Technology Center 1600

/Nora M Rooney/

Examiner, Art Unit 1644